Course number	U-LAS14 20045 LE68		

Course title (and course title in English)	Fundamentals of Neuroscience-E2 Fundamentals of Neuroscience-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Senior Lecturer,ZENAS C. CHAO

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture (Face-to-face course)	Year/semesters	2024 First semester

Days and periods	Mon.2	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

This course covers the basic background required to understand how networks of neurons could generate complex functions of the brain. You will learn topics ranging from the electrical properties of an individual neuron to higher brain functions, such as memory and consciousness. In this class, I will put more emphasis on big picture concepts, which I believe are more meaningful than memorizing a lot of facts and details that you can easily look up. Students with no biology-related backgrounds are welcome.

[Course objectives]

(1) To understand the basic components of the nervous system.
(2) To appreciate the complexity of brain functions and to understand their biological basis.
(3) To review and share neuroscience topics through presentation and discussion.

[Course schedule and contents)]

(1) Introduction

PART I. Neurons & Neural Networks
(2) Neurons & Glia
(3) The Resting Potential
(4) The Action Potential & Its Propagation
(5) Synaptic Transmission
(6) Computation in Small Circuits
(7) Synaptic Plasticity

PART II. Functions of the Brain
(8) Brain Anatomy
(9) Sensory System- Vision
(10) Sensory System- Audition
(11) Motor System
(12) Learning & Memory
(13) Attention & Consciousness
(14) Self & Society

(15) Final Exam
(16) Feedback

Fundamentals of Neuroscience-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Participation (~25%), short presentation (~25%), quizzes (~25%), final exam (~25%).

[Textbooks]

Instructed during class
Lecture notes will be provided.

[References, etc.]

References, etc.

UTHealth Neuroscience Online Textbook: https://nba.uth.tmc.edu/neuroscience/

[Study outside of class (preparation and review)]

Students are expected to be active participants in class discussions, and to spend 1~2 hours per week to review the course materials.

[Other information (office hours, etc.)]